

淡江大學 98 學年度轉學生招生考試試題

系別：工組三年級

科目：工 程 數 學

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| 准帶項目請打「V」 | |
| | 計 算 機 |

本試題共 4 大題， / 頁

1. Consider first Differential Equation:

$$2xydx + (x^2 - 1)dy = 0$$

- a) Is the differential equation exact?
b) Find the general solution?

2. Given that $y_1 = e^x$ is a solution of $y'' - y = 0$ on $[-\infty, \infty]$,
use reduction of order to find a second solution y_2 .

3. Solve $y'' - 6y' + 9y = 5e^{3x}$

4. Solve $y'' + 4y' + 3y = e^x$, $y(0) = 0$, $y'(0) = 2$ by using the Laplace Transform.